

REMARKS

Applicants sincerely appreciate the examination of the present application as evidenced by the Office Action of April 28, 2010 (hereinafter, "the Office Action").

Claims 1-13, 15, 19-21, 26-29, 38, 40, and 42-43 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2004/0014860 (hereinafter "Meier") in view of U.S. Patent No. 5,609,954 (hereinafter "Aizawa") and WIPO Publication WO 00/75254 (hereinafter "Bain"). Claims 16-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain, and further in view of U.S. Patent No. 6,936,644 (hereinafter "Gilleo"). Claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain, and further in view of U.S. Patent Publication No. 2002/0007910 (hereinafter Bennett").

The Office Action indicates that Claims 14, 22-25 and 44-45 would be allowable if rewritten to include the recitations of each underlying base/intervening claim.

Claim 1 has been amended to include the recitations of Claim 14. Claims 4, 38 and 40 have been amended to include the recitations of Claim 44. Claims 22-25 and 45 have been amended to depend from Claim 4 (rather than Claim 1). New Claims 46-54 have been added. Support for these amendments can be found throughout the specification. *See, e.g.*, Specification, page 5, lines 23-26; page 6, lines 1-4; page 10, lines 11-14; page 13, line 20 through page 14, line 22; page 16, lines 7-17 and 28-31; page 22, lines 1-5 and page 27, lines 5-9.

In view of the foregoing amendments and the following remarks, Applicants respectfully submit that each of the pending claims is patentable over the cited references and therefore requests the reconsideration and withdrawal of the outstanding rejections.

Rejections under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, the prior art reference or combination of references must teach or suggest **all** of the limitations of the claims. *See, e.g., In re Wilson* 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (CCPA 1970) ("All words in a claim must be considered in judging the patentability of that claim against the prior art").

The cited references fail to teach or suggest numerous aspects of the claimed invention, including, but not limited to:

- 1) an adhesive composition "wherein [a] second set of thermoexpandable microspheres [associated with debonding] comprises about 3-5%, by weight, of the cleaner and about 5-10%, by weight, of the primer"; and
- 2) an adhesive composition wherein thermoexpandable microspheres are "dispersed therein in an arrangement of micro-wires, electrically conductive fibres or aluminum/steel filaments."

Each of the pending claims either recites one of the aforementioned aspects of the invention or depends from a claim that does so. The cited references therefore cannot render the pending claims obvious because they fail to teach or suggest at least one aspect of each of the pending claims.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of each of the outstanding rejections.

I. Claim 1 is Patentable over Meier, Aizawa and Bain

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain.

Claim 1, as amended, recites:

A method of bonding and debonding two or more surfaces or supports or layers of an adhesive system, the method comprising:

(i) providing a first power level of thermal radiation and/or thermal conduction and/or thermal energy which passes through an adhesive composition comprising:

- (a) an adhesive agent,
- (b) a cleaner,

- (c) a primer,
- (d) a first set of thermoexpandable microspheres associated with curing and bonding, and
- (e) a second set of thermoexpandable microspheres associated with debonding,

wherein said second set of thermoexpandable microspheres comprises microspheres encapsulating an expanding agent, said microspheres encapsulating an expanding agent comprising about 3-5%, by weight, of the cleaner and about 5-10%, by weight, of the primer,

such that the contents of the first set of thermoexpandable microspheres leach or migrate through the porous shells of the first set of thermoexpandable microspheres into the matrix of the adhesive composition, thereby curing the adhesive composition; and

- (ii) providing a second power level of thermal radiation and/or thermal conduction and/or thermal energy which concentrates on the surfaces or supports or layers of the adhesive system so as to expand the second set of thermoexpandable microspheres, thereby weakening the adhesive forces in the interface of the adhesive system.

None of the cited references teaches or suggests a method comprising an adhesive composition that comprises a set of debonding microspheres encapsulating an expanding agent, wherein said microspheres "comprise[] about 3-5%, by weight of [a] cleaner and about 5-10%, by weight, of [a] primer." Indeed, the cited references fail even to suggest the use of an adhesive composition comprising an adhesive agent, a cleaner and a primer.

Therefore, because the cited references fail to teach or suggest every aspect of the claimed invention, Applicants respectfully submit that the outstanding rejection of Claim 1 should be reconsidered and withdrawn.

II. Claims 2-3, 5-13, 15-21, 26-28 and 46-47 are Patentable over the Cited References

Claims 2-3, 5-13, 15, 19-21 and 26-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Meier in view of Aizawa and Bain. Claims 16-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain, and further in view of Gilleo. Claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain, and further in view of Bennett.

Applicants respectfully submit that Claims 2-3, 5-13, 15-21, 26-28 and 46-47 are patentable over the cited references at least by virtue of their depending from Claim 1, which is itself patentable over the cited references. Moreover, Applicants note that many of the aforementioned dependent claims are separately patentable over the cited references.

For example, with respect to Claims 6 and 7, the cited references fail to teach or suggest the use of a “first set of thermoexpandable microspheres [that] comprise a co-polymeric shell which encapsulates a curing agent or catalyst mixed with an expanding agent.” The Office Action relies upon Bain to supply the necessary teaching. Office Action, page 4. Yet Bain cannot properly be relied upon to teach the contents of microspheres associated with curing and bonding because all of the microspheres described in Bain are associated only with debonding. Bain clearly teaches that expanding agents are included in its microspheres for the purpose of weakening the adhesive bond and “facilitating lifting and ease of removing fixed glazing.” See Bain, page 6, lines 26–31. Bain would therefore discourage one of ordinary skill in the art from including an expanding agent in microspheres associated with curing and bonding.

With respect to Claim 8, the cited references fail to teach or suggest a method wherein “microspheres associated with curing and bonding have a larger cross sectional diameter than those associated with debonding.” Although Bain describes “a mixture of microcapsules of different diameter or shell thickness” (page 7, lines 15-16), it provides no guidance as to the whether microspheres associated with curing and bonding should be larger or smaller than their debonding counterparts. That Bain fails to provide such teaching is not surprising—as noted above, none of Bain’s microspheres are associated with curing and bonding.

With respect to Claim 15, the cited references fail to teach or suggest a method wherein “microspheres encapsulating [a] curing agent or catalyst constitut[e] about 2-3%, by weight, of the adhesive composition.” Again, the Office Action relies upon Bain to supply the necessary teaching. Office Action, page 5. Yet the cited passage merely states that “the composition comprises microcapsules in the range of 1-30% by volume, more preferably in the range of 2-10% by volume.” Even if one assumes—like the Examiner—“that the lower

end of the disclosed range would be expected to correlate to 2-3% by weight,” the cited passage cannot render Claim 15 obvious because Bain’s description relates only to the **total** amount of microspheres, not to any given subset of microspheres. Moreover, as noted above, Bain does not describe microspheres associated with curing and bonding. Thus, if any teaching is to be gleaned from Bain regarding the appropriate amount of such microspheres, it must be that microspheres associated with curing and bonding ought to constitute exactly 0% of the adhesive composition, not the claimed “about 2-3%.”

With respect to Claim 19, the cited references fail to teach or suggest a method wherein the “microspheres are coated in a black material.” Once again, the Office Action relies upon Bain to supply the necessary teaching. Office Action, page 6. Yet the cited passage merely describes using a “colouring agent so that the cured composition is black.” Bain, page 6, lines 4–6. Bain’s colouring agent is simply an “additional” ingredient that is added to the overall composition, something to be mixed into the adhesive agent (just like the microsphere powder described at page 5, lines 25–31). Bain’s microspheres are therefore not “coated in a black material” except insofar as they happen to be dispersed throughout the adhesive agent alongside the colouring agent.

With respect to Claim 21, the cited references fail to teach or suggest a method wherein “thermoexpandable microspheres act[] as a vehicle, transporter, carrier, chemical or physical barrier or dispersing aid to prevent the clustering of one or more molecules, detergents or cleaning agents in a mixture comprising a binder and a solvent.” Notably, the Office Action neither cites any passage of the cited references to support a *prima facie* case of obviousness with respect to Claim 21, nor supplies any independent rationale to support such a finding.

III. Claims 4, 38 and 40 are Patentable over Meier, Aizawa and Bain

Claims 4, 38 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Meier in view of Aizawa and Bain.

Claim 4, as amended, recites:

An adhesive composition comprising an adhesive agent and dispersed therein a first set of thermoexpandable microspheres being associated with curing and bonding and a second set of thermoexpandable microspheres being associated with debonding, **wherein the first and second sets of thermoexpandable microspheres are dispersed therein in an arrangement of micro-wires, electrically conductive fibres or aluminum/steel filaments** and are not simultaneously activatable.

Claims 38 and 40 contain similar recitations.

None of the cited references teaches or suggests an adhesive composition wherein "thermoexpandable microspheres are dispersed therein in an arrangement of micro-wires, electrically conductive fibres or aluminum/steel filaments."

Therefore, because the cited references fail to teach or suggest every aspect of the claimed invention, Applicants respectfully submit that the outstanding rejections of Claims 4, 38 and 40 should be reconsidered and withdrawn.

IV. Claims 22-25, 29, 42-43, 45 and 48-54 are Patentable over the Cited References

Claims 22-25 and 45 have been indicated to be allowable if re-written to include the recitations of any base/intervening claims. Claims 29 and 42-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Meier in view of Aizawa and Bain.

Applicants respectfully submit that Claims 22-25, 29, 42-43, 45 and 48-54 are patentable over the cited references at least by virtue of their depending from an allowable base claim. Moreover, Applicants note that several of the aforementioned dependent claims are separately patentable over the cited references.

For example, with respect to Claims 22-25, the cited references fail to teach or suggest dispersing thermoexpandable microspheres "in an arrangement of micro-wires so as to form a polygonal arrangement."

With respect to Claim 23, the cited references fail to teach or suggest the use of micro-wires that are "about 100-200 μ in length."

With respect to Claim 24, the cited references fail to teach or suggest the use of micro-wires that are "about 2-20 μ in diameter."

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With respect to Claim 25, the cited references fail to teach or suggest an adhesive composition comprising "about 1-10% volume of micro-wires."

With respect to Claim 45, the cited references fail to teach or suggest an adhesive composition wherein "microwires, electrically conductive fibres or aluminum/steel filaments are dispersed so as to create a tangle of electrical conductors."

CONCLUSION

Applicants respectfully submit that all pending claims in the present application are in condition for allowance, and a Notice of Allowance is respectfully requested in due course. The Examiner is encouraged to contact the undersigned attorney by telephone should any additional issues need to be addressed.

Respectfully submitted,

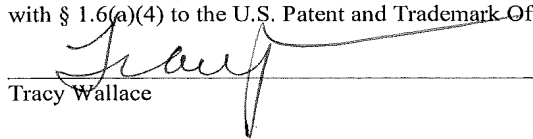


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